

# P·G·and E·Progress

Published by the Pacific Gas and Electric Company  
A California Corporation, Owned, Operated and Managed by Californians

Vol. 1

SAN FRANCISCO, APRIL, 1924

No. 5

## San Francisco Sets the Pace



(Photographs by courtesy San Francisco Chamber of Commerce.)

GLIMPSES OF "THE CITY THAT IS"—1. Along the Skyline. 2. American Can Company. 3. Schmidt Lithograph Company. 4. Union Iron Works. 5. City Hall. 6. Southern Pacific Co.'s Grocers' Terminal. 7. Dock Scene. 8. Ghirardelli Chocolate Factory. 9. Potrero Gas Plant and Western Sugar Refinery.

### "Financial Capital" Leads U. S. in Per Capita Wealth

First in per capita wealth.

That's how San Francisco ranks among the cities of the United States.

Sixth in volume of business, sixth in bank clearings and fifth in foreign trade.

Those honors, too, belong to San Francisco, and help to tell the story of her commercial and industrial importance.

Take actual values, divide the total by the number of inhabitants, and the average wealth runs thus:

Chicago, \$555; St. Louis, \$1,250; Philadelphia, \$1,610; Kansas City, \$1,680; Pitts-

burgh, \$1,760; New York City, \$1,830; Cleveland, \$2,180; Boston, \$2,180; Los Angeles, \$2,975, and San Francisco, \$3,215.

In volume of business, as shown by bank debits, the city by the Golden Gate is excelled only by New York City, Chicago, Philadelphia, Boston and Pittsburgh.

Her bank clearings, rising to \$8,049,066,000 in 1923, an increase of \$750,000,000 in a single year, proved anew her right to the title of "Financial Capital of the Pacific Coast."

In 1923 her foreign trade totaled \$327,000,000. Seven hundred and eighty-eight ships—more than two a day—cleared from her wharves, and her 530 firms of exporters

and importers handled more than 5,000,000 tons of deep-sea freight.

Other lines of business kept pace with ocean trade. In the year just ended 924 new industries set up plants in San Francisco, giving employment to 3,022 workers and adding \$5,416,000 to the city's industrial payroll.

Power for manufacturing was plentiful, and in the twelve-month period the sales of electrical energy by the Pacific Gas and Electric Company increased from 158,668,336 kilowatt hours to 184,266,617 kilowatt hours, a gain of more than 16 per cent. In the same period consumption of gas—largely

(Continued on next page.)



## San Francisco Sets Pace

(Continued from page one.)

used in manufacturing—rose from 5,964,168,000 cubic feet to 6,311,176,000 cubic feet, an increase of 6 per cent.

Further emphasizing the industrial growth, use of electric power, which in 1920 stood at 290 kilowatt hours for each inhabitant, grew to 340 kilowatt hours by the end of 1923, while the per capita use of gas climbed from approximately 1,000 cubic feet in 1920 to 1900 feet in 1923.

Building permits rolled up a total value of \$46,676,079, of which \$18,700,000 went into large, substantial business buildings, and \$9,500,000 into new homes. The year's additions in business districts included 14 Class A. buildings and 400 of Classes B and C.

Since the great fire of 1906 swept the city more than \$500,000,000 has been spent in building, making the new San Francisco far more beautiful than the old. Among the monumental buildings completed last year were the Federal Reserve Bank, the Anglo & London-Paris National Bank, the Matson Navigation Company's building, the Stock Exchange, the Fitzhugh building, and the State building in the Civic Center. Other great structures are now in course of erection, among them the Chronicle building and the new general headquarters building of the Pacific Gas and Electric Company.

Postal receipts for last year increased more than half a million dollars, the total exceeding \$7,000,000 and putting San Francisco in the first class along with such cities as New York, Philadelphia, Boston and Chicago.

Real estate sales rose from \$132,227,473 to \$156,188,438. In short, business boomed all along the line. It was a big year, without any forced draught; just a steady lift upward. And there are bigger years to come, for—

San Francisco is the city with the irresistible pull of business and romance allied. It is the city of the world's most wonderful harbor, the city that was the metropolis of the gold days, the city that Stevenson loved, the city of the Presidio, of Telegraph Hill, of Mission Dolores, the city with a bit of the Orient—the one great American city with the Pacific Ocean at its very door.

## San Francisco Gains 250 Enterprises in One Week

Records for business expansion were broken in the week ending March 14, according to a report given out by the San Francisco Chamber of Commerce. In that week San Francisco gained 250 new enterprises. The report included industrial, mercantile and professional concerns.

In January and February 910 firms were added to the business roster.

## Pay-Roll Grows Fastest

### L. A. Power Bureau Employees May Outnumber Patrons

In an article headed "Pay-roll Drains Power Bureau" the Los Angeles Times of February 18 said:

"While the number of electric consumers on the lines of the Municipal Bureau of Power and Light has increased 45 per cent as a result of the city's purchase of the Los Angeles business of the Southern California Edison Company, the number of employees on the bureau's pay-roll has increased 275 per cent."

Official records are given as authority for the statement.

Here are some other interesting figures from Los Angeles, showing the proportion of employees before the Edison purchase, immediately after the purchase and at the present time:

#### Before the Purchase.

|   |          |
|---|----------|
| Number of consumers on city distributing system .....                               | 21,948   |
| Number of Municipal Bureau of Power and Light employees handling distribution ..... | 500      |
| Ratio of city consumers to city employees .....                                     | 44 to 1  |
| Number of consumers on Edison system sold to city .....                             | 117,082  |
| Number of employees handling Edison system distribution .....                       | 480      |
| Ratio of Edison consumers to Edison employees .....                                 | 244 to 1 |

#### Immediately After.

|  |          |
|--|----------|
| Total consumers municipal system (including Edison purchase)....                           | 139,030  |
| Total employees (bureau distribution employees plus Edison employees loaned to city) ..... | 980      |
| Ratio consumers to employees .....   | 142 to 1 |

#### At the Present Time.

|   |         |
|---|---------|
| Total consumers consolidated system .....                   | 170,763 |
| Total municipal bureau employees on distribution work ..... | 1,800   |
| Ratio consumers to employees .....                          | 95 to 1 |

And now the Los Angeles Municipal Bureau of Power and Light is planning a \$30,000,000 bond issue to extend its operations and to take over the properties of the Los Angeles Gas and Electric Corporation on the ground that further consolidation will bring about economies of operation.

## Seven Billions for Taxes

"The tax bill of the United States amounts to approximately 7 billion dollars a year, an increase over 1913 of 250 per cent, according to the National Industrial Conference Board. The board reports that nearly one-fifth of the nation's wealth is exempt from taxation. It is estimated that every person in the country must work six and a quarter weeks to obtain enough money to pay his taxes, as compared to three and one-third weeks before the war."—Capper's Farmer.

## Oakland Scores Again

### East Bay Metropolis Attracts Another Big Factory

With the coming of the Illinois Wire and Cable Company, Oakland counts 46 nationally-known industries that have located in or near the East Bay metropolis within two years. The latest acquisition has just signed a power contract with the Pacific Gas and Electric Company.

Plenty of electrical power at cheap rates is one of the inducements held out by Oakland to big Eastern manufacturers desiring to establish a California plant. Evidently investigation of that claim has brought results, for now the East Bay industrial territory has numerous big buildings and factories bearing such familiar names as Procter & Gamble, Westinghouse, Sherwin-Williams, Paraffine Companies, General Electric, Shredded Wheat Company, Fisher Body, Victor Talking Machine Company, Montgomery-Ward, Aluminum Products and General Motors.

This factory growth is steady. Last year the new industrial plants numbered 65—more than a factory a week. Industries, big and little, Eastern and Californian, have flocked in, and today Oakland has 700 factories with a \$325,000,000 annual output and a payroll of more than \$81,000,000.

### Tacoma Schools Complain of City's High Power Rate

Under the heading "Charge Rates Are Too High; Board Asks Cheaper Light and Power for Schools," the Tacoma Times recently published the following paragraphs in its news columns:

"Complaint was made to the city council Wednesday by Alfred Lister, secretary of the school board, that the city is charging too much for the light and power furnished public schools here.

"Lister sent a letter to the council stating that the annual bill for light and power is about \$12,000, and that the bill for January, with one week's vacation, amounted to \$1,055.75, an average of 3.63 cents per kilowatt hour."

In San Francisco the Pacific Gas and Electric Company furnishes light to schools for 2.75 cents a kilowatt hour and power for 2 cents a kilowatt hour.

That figures out an average of less than 2½ cents against Tacoma's 3.63 cents.

And Tacoma's light and power comes from a city-owned hydro-electric plant that pays no taxes.

One hundred and twenty-nine electric floodlights make the 26-story Wrigley building in Chicago visible 15 miles.



## Poor Light; Less Work On the Job With the "Old Timers"

### Tests Show Great Gain From Increased Illumination

Poor light in industry means inefficiency. According to W. L. Stockwell, illuminating engineer, tests and surveys show that the loss to industries in the United States through this remediable cause amounts to 20 cents per day per man, or a total of two and one-half billion dollars a year. And that tremendous sum would build half a dozen Panama canals with every dollar of cost paid off when the floodgates opened.

Tests conducted by the Postoffice department in one of its offices demonstrated that by simply increasing the intensity of the electric light from 3.6-foot candles to 8-foot candles a gain of labor output could be obtained of \$3 for every dollar expended in improving the lighting installation.

The Detroit Piston Ring Company of Detroit found, after sixteen months of careful testing, that raising their light intensity from one-half-foot candles to 14-foot candles increased their production 25 per cent at an additional payroll cost of only 2 per cent.

Better light means greater efficiency, larger returns for employers and more comfort and more money for employees.

### How a Scotch Boy Pointed Way to Great Industry

Take a clay pipe, fill the bowl with coal dust—if you can afford it—seal it over with clay, and put the bowl in the fire, or in the flame of a bunsen burner. Gas will issue from the stem. Touch a match to it, and it will light.

William Murdock, a Scotch boy, born in 1754, made gas in that way by using his mother's teapot. Some time afterward he drew people from miles around to see a room lighted by a flame that burned neither oil nor wick.

This pioneer of the gas industry discovered the gas burner—by accident. Losing the clay plug that he used to stop up the pipe and put out his wonderful new light he picked up his wife's thimble and slipped it on the end of the pipe. Gas came hissing through holes in the top of the thimble, and when he touched the jets with a match he found he had a much better light.

Don't give your electric light bulb that final wrench when screwing it into the socket. It is this last turn that tends to lessen the life of the globe by separating the glass from the brass case. Hold the bulb in your finger tips, insert it carefully, and omit the final strain.

### Water Plus Lininger Works Miracle in Placer Hills

(This is the second of a series of sketches of veteran employes in the various company divisions.)

Everybody in Placer county calls William E. Lininger "Bill." He is the superintendent of water distribution in Drum division of the Pacific Gas and Electric Company, and his specialty is irrigation, the art that transforms arid places and makes Mother Nature marvel at what she overlooked.

When "Bill" went to work for the old South Yuba Water Company in 1894, many of the rolling foothills of Placer county were covered with scrub oak, chaparral and manzanita. It was his job to make those hills yield food instead of firewood. For this purpose the waters of the Yuba River, stored in reservoirs among high mountain peaks during the winter, were released through many miles of ditches in the dry season.

Sticking to his task day after day, guiding the ditches further and further down the slopes each year, "Bill" worked miracles with the brushy hills. Harvests of acorns gave way to harvests of pears. Thickets of manzanita and chaparral disappeared and orderly rows of peach and plum trees took their place. Today if you ask an old resident how it was done he will say "Irrigation"; then add with emphasis, "and 'Bill' Lininger."

Yet that isn't all of "Bill's" record. He installed the Rocklin water works. That was in 1894, his first year on the job. A year later he was called to Newcastle to take charge of what was then the Newcastle water district, and it was in his time that Newcastle was first lighted by electricity, with current from Newcastle power-house, now only a memory.

"Bill" looked after the Newcastle territory for twenty-three years. Then, in 1918, he was ordered to Auburn to take the higher job of supervising all water department activities of the P. G. and E.



William E. Lininger

west of Colfax, the position he holds today.

Much water has come down the hills since "Bill" first walked the ditches, and most of it goes to a better purpose than nourishing brush roots. The year he went on the job there were only 436 irrigation consumers taking 1200 miners' inches of water. Today there are 1069 consumers in the Placer district taking 5000 miners' inches.

That's the story of "Bill's" life, that and the incidental facts that he was born in Iowa 60 years ago, came to California when he was 8 years old, attended school in Ophir, a thriving mining camp of the old days, married and raised three children, and hasn't missed a pay-day in thirty years.

### This Means Good Service

One-seventh of the employes of the Pacific Gas and Electric Company have devoted ten or more years to the service. Holders of service badges now number 1420. Of these 721 have been with the company from 10 to 14 years; 383 from 15 to 19 years; 155 from 20 to 24 years; 69 from 25 to 29 years; 57 from 30 to 34 years; 25 from 35 to 39 years, and 10 have been company employes for more than 40 years. Service badges are awarded each year, and time put in with companies merged into the Pacific Gas and Electric Company counts in the record.

### Gas Customers "Buy In"

"During the last twenty months," says the American Gas Association, "the gas industry took 227,170 more of its 9,000,000 customers into partnership. To this new group of customer-owners they sold 1,251,640 shares of stock in the companies that serve them in their respective localities. Of this number 550,709 were shares of stock in gas manufacturing companies and 700,932 shares of combination gas and electric. The sale of securities gave the companies \$106,836,000 for improvements and expansion."



## P. G. and E. Progress

Published by

The Pacific Gas and Electric Company  
445 Sutter Street, San Francisco, California

Vol. 1

April, 1924

No. 5

### In Answer to Critics Who Get Their Figures Mixed

Unfriendly critics have referred to a report of the United States Department of Commerce on central electric light and power stations in California as authority for the assertion that in the five years from 1917 to 1922 the cost of power to consumers rose 102 per cent. As a matter of fact, the report did not say that, or anything else that would justify such a conclusion. What the report said was that in the period mentioned the gross income of power companies increased 102 per cent, which is something entirely different.

Patrons of the Pacific Gas and Electric Company need only recall their bills of 1917 to ascertain that they are now paying, not 102 per cent more, but less than 10 per cent more than they paid then. Yet in that time the general price level of things necessary to life and comfort has risen 60 per cent.

In P. G. and E. territory the number of consumers has increased a trifle more than 75 per cent and the amount of electricity sold has increased 79 per cent. So far as the percentage of return on investment is concerned, that is fixed by the State Railroad Commission, and is the same today that it was in 1917.

Our critics not only imply but charge that rates are unfairly high. To that charge let B. C. Forbes be called in refutation. Mr. Forbes is the man who writes the "Business and Finance" column that appears daily in the San Francisco Examiner. Recently, after a thorough investigation of conditions in California and other Pacific Coast States, he put out a book called "Men Who Are Making the West." In the foreword of that book he said:

"The hydro-electric industry is more advanced on the Pacific Coast than anywhere else in America, affording power in unlimited quantities at the lowest rates in the land."

### "Collier's" Doesn't Think Much of "Cheap Pilots"

"Cheap Pilots Aren't Much at Steering," was the title of an editorial in "Collier's" of March 8th that read:

"What ails the whole postoffice system? For 1923 it took in over five hundred million dollars, a revenue that compares favorably with Henry Ford's business and is larger than the earnings of the entire Bell

telephone system. These enterprises made money. The postoffice lost over twenty millions. That loss is the responsibility of the management. The average postmaster's compensation is about \$800 per year. Not one single class of postal employes gets prevailing rates of pay for the sort of work they do. The Postmaster-General is paid \$12,000 per year, but he changes with each new administration. The sixteen principal officers under him, who really carry on the work, get from \$2,500 to \$5,000 and average under \$4,000. That means cheap management, too cheap for results.

"Ford would never dream of having \$4,000 men at the head of even unimportant subdivisions of his business. Both Ford and the Bell system pay dozens of men a good deal more than \$12,000 per year—not to spend money, but to get results. A gross revenue of over forty millions per month means a huge flow of business which only the best management can handle.

"The postoffice should not make a profit. It should break even. To make up the present loss of 4 per cent it's not necessary to raise postal rates. Better organization and methods could easily save that much. Even Uncle Sam has to spend money to save money."

Two California cities are among the municipalities that do not need to be converted to "Collier's" way of thinking. Stockton pays its city manager \$20,000 a year, and only recently Sacramento increased the salary of its city manager from \$10,000 to \$15,000.

### You Can't Fool the Horse

"As a matter of fact," says William Randolph Hearst in an interview in the San Francisco Examiner of March 3, "taxation is disseminated throughout the whole community and eventually lands upon the ultimate consumer.

"You cannot pour water on one end of a pond in the hope of making that end higher than the other end. The weight of the water is soon spread over the whole pond.

"Again, it does not matter whether you put a burden on the forequarters of a horse or on the hindquarters of a horse. In either case you put it on the horse, and the horse knows it. A little horse sense would not hurt some politicians."

### "Gas Equipment Week"

"Gas Equipment Week" is at hand. It begins April 7. Your dealer will tell you all about it, and, by means of a practical display, demonstrate to you how modern gas appliances make for better homes. Don't miss this chance. A few minutes at one of these exhibitions may result in adding some new comfort to your home.

## Points Out Tax Loss

### Los Angeles Utility Company Opposes Condemnation

As a protest against absorption by a municipal light and power bureau the Los Angeles Gas and Electric Corporation recently printed in the newspapers of that city an advertisement that read:

"Municipally owned and politically operated utilities such as the Los Angeles Bureau of Power and Light pay no taxes. In contrast, the tax bill of Los Angeles Gas and Electric Corporation for 1923 totals \$1,198,798.74. The California state government is supported entirely by taxes collected from corporations such as Los Angeles Gas and Electric Corporation.

"The electric rates of the bureau and the corporation are the same; therefore the patrons of the bureau gain nothing because of the freedom of the bureau from taxation.

"But the people, who ultimately pay all taxes, have to pay in other ways the taxes eaten up by the system of political operation under which the bureau is conducted.

"If the bureau should be permitted by condemnation to force the electric system of Los Angeles Gas and Electric Corporation under its own control, the loss to the public would be two-fold:

"First: Through the higher service rates naturally to be expected by reason of the absence of either Railroad Commission control or competition, and

"Second: The immense sums now paid into the public treasury as taxes on the electrical business of the corporation.

"This is 'a condition—not a theory.'"

### Reduced Power Rates for New P. G. and E. Territory

Reduced electric rates for the Marin, Sonoma and Mendocino territory served by the California Telephone and Light Company, recently taken over by the Pacific Gas & Electric Company, have been approved by the State Railroad Commission.

New schedules involving a material reduction in charges for lighting, heating and cooking, general power and agricultural power were prepared and filed with the commission following a series of conferences between P. G. and E. officials and J. J. Deuel, manager of the law and utilities department of the Farm Bureau Federation. These new schedules, which were approved by the State regulatory body, were made possible by economies due to the greater efficiency of a large regional system as compared to that of an isolated company serving a small district.



## Do You Know?

Do you know

That the rates charged by the Ontario Hydro-Electric (Canada) Power Commission to municipalities vary from \$13 per horsepower year to \$117 per horsepower year?

That the Ontario Commission's rates to rural districts vary from \$54 to \$347 a year?

The Ontario Commission's generating plants and lines are government-owned and pay no taxes, but its local rates, instead of being uniform, are based on costs in each community and vary widely not only throughout the Province of Ontario, but in different communities supplied from the same system.

Do you know

That in more than 60 cities of the Province of Ontario supplied with electrical energy by the Ontario Hydro-Electric Power Commission the average revenue for lighting service exceeds 7 cents per kilowatt hour?

That in more than 40 cities the Ontario Commission's average rate exceeds 8 cents per kilowatt hour?

The average rate for all classes of lighting service in the Pacific Gas and Electric Company's territory is approximately 6 cents per kilowatt hour. And the 8-cent rate charged by the Ontario Commission in more than 40 cities is higher than the P. G. and E.'s lighting rate in RURAL territory.

Do you know

That the lowest-cost power obtained by the Ontario Hydro-Electric Power Commission is purchased from a private company and that this low-cost power is used by the commission to supply the city of Ottawa, where the rates are lower than in any other part of Ontario?

Do you know

That to encourage the extension of power facilities to rural communities the Province of Ontario gives to the Hydro-Electric Power Commission, out of the public treasury, a 50 per cent bonus on all investment in rural lines?

Yet in spite of that bonus the rates for rural service in Ontario are twice as high as that charged for similar service supplied to rural districts in California by the Pacific Gas and Electric Company.

### That Cannery Picture

The picture of the packing plant in the "Glimpses of Sacramento" group in the March issue of "Progress" was that of Libby, McNeil & Company. By mistake the picture was labeled "part of the plant of the California Packing Corporation," another of Sacramento's big industrial concerns.

## Mountain Paradise Deeded to State



Beautiful Burney Falls, Situated on Public Tract Adjoining Lands Given to California by the Pacific Gas and Electric Company

**A**NOTHER bit of mountain paradise has just been added to the list of summer camping places for vacationists. The Pacific Gas and Electric Company has deeded 175 acres of land along the Pit River, sixty-five miles northeast of Redding, to the State of California for use as a public park.

Tall pines, the whispering kind that poets write about; snow-capped Mount Shasta standing guard close by, and a trout stream at the door of one's camp are some of the new park's attractions. A fine mountain road now being built by the company will cross the Pit along the crest of a 110-foot dam, which, when completed, will back up the river ten miles and form a large mountain lake, bordering the tract and adding to its alluring charms.

Close by, on land already owned by the State, is Burney Falls, perhaps the most beautiful of all the scenic features of the Shasta country. Burney Creek comes gushing out of the lava beds a mile above the falls, and, no matter how dry the season, flows on year after year, sending a flood of water tumbling 165 feet over a broad ledge into a deep blue pool that mirrors back the rocks and trees surrounding it.

## Now the Bills Come In

### East Bay Utility District Adds \$275,215 to Tax Roll

While the campaign for the Eastbay Public Utility District was on last spring little or nothing was said of preliminary expense. Now the first budget is out, and county assessors are notified to provide for \$275,215 in their assessments for the coming fiscal year. And that means, of course, additional taxes.

The Oakland Tribune, in reporting the budget decision of the directors of the district, said:

"The budget, it is admitted, will include 'compensating salaries' for the first year, to make up for the work which has been donated gratis until the district could finance itself. Included in these are Chief Engineer A. P. Davis, who gets

\$18,000 for the first year and \$15,000 thereafter; Attorney William J. Locke, who gets \$7,500 first and \$6,000 thereafter, and Secretary Kimball, who starts with \$5,000 and gets \$3,000 thereafter."

Of the total of \$275,215, more than one-fourth goes for investigations; \$40,000 for investigating the Iron Canyon, McCloud River, Mokelumne River and American River projects; \$20,000 for investigating the Eel River and Russian River projects and \$20,000 for investigating the Hetch Hetchy project.

### 70,000 Miles of Gas Mains

The gas industry in the United States serves more than 4600 cities, and its product goes through more than 70,000 miles of street mains, big and little. If all these pipes were laid end to end they would form a line long enough to go around the earth at the equator almost three times. Gas production in 1923 averaged about a billion cubic feet a day.



# Territorial Tidings

## Redding

The Palo-Cedro Redding 60,000-volt line has been tapped by the company and an extension run a mile and a quarter in order to supply 300-horsepower to the gravel pit of the Kaiser Paving Company of Oakland, which was awarded the contract for the first ten-mile stretch of State highway north of Redding. About 250 days will be required for the work.

## Kennett

After four years of inactivity the "copper town" has come back. Mining operations in Kennett territory are now taking 2,000,000 kilowatt hours of electric energy a month. Two furnaces are in use, and a third is undergoing reconstruction. More than 400 men are employed in mines and smelters, with a daily output of between 500 and 600 tons of copper mat.

## Auburn

Company improvements in the local water and irrigation systems call for an expenditure of \$28,000. Fiddler Green Canal is to be enlarged, and through it and a mile of new ditch and pipe line thirty second-feet of water will be diverted from Rock Creek Reservoir to the Boardman Canal during the irrigation season.

## Vallejo

In order to supply Napa with gas from the company's Vallejo plant a steam-driven compressor with a capacity of 50,000 cubic feet per hour is being installed here at a cost of \$16,400. On the completion of the transmission line between the two cities the new compressor will be available to assure Napa continuous service.

## Hayward

Increased demand for gas service, due to rapid growth of population, necessitates the laying of 1012 feet of gas mains in Sunset boulevard and 3820 feet in Jackson street, Mount Eden road and Soto street to supply new applicants.

## Redwood City

Power lines are being extended to provide 400 horsepower for the Foundation Company of New York, which has a contract for building the plant of the Pacific Portland Cement Company near here.

## Marysville

Reconstruction of the Marysville and Yuba City electric distribution system has been ordered. This work, designed to standardize the local system, will cost about \$20,000. Still another improvement will be the reconstruction of the private telephone lines between Marysville and Smartsville operated by the company for directing the dispatching of power.

## Oakland

To keep pace with community growth and provide sufficient compressor capacity for its Oakland gas distribution system the company will install an additional compressor of 250,000 cubic feet per hour capacity. Cost estimates approximate \$30,000. With the new installation the local plant will have a peak "send-out" of 1,250,000 cubic feet per hour.

## Berkeley

Owing to increasing demands for electric service due to the active building that has been in progress for the past year, the company is preparing to spend \$125,000 in construction work here. A six-way underground conduit system will be built to tie-in with the Berkeley and Oakland substations, thus enabling the company to provide additional energy for the Berkeley area.

## Chico

Extension of the high voltage power lines from the Durham-Dayton road to the new Durham High School and the installation of new transformers have been made necessary by the demands of the school for electrical energy for power, cooking and lighting purposes. Power lines are also to be extended to a new subdivision on the county road west of the city.

## Just a Few of Many Other Activities

| Town          | Amount    | Nature of Work   |
|---------------|-----------|--|
| Applegate:    | \$ 2,885— | Extension of power lines.                                  |
| Calistoga:    | 2,880—    | Power line extension to supply St. Helena Sanitarium.      |
| Grass Valley: | 2,500—    | Installation of improved street-lighting system.           |
| Livermore:    | 14,300—   | Power line extension to supply U. S. Government Hospital.  |
| Manteca:      | 2,185—    | Extension of power lines.                                  |
| Martinez:     | 12,600—   | Additional equipment for South Tower and Ridge substation. |
| Penn Grove:   | 9,645—    | Laying of 12,500 feet of gas main.                         |
| Pittsburg:    | 4,800—    | Extension of power lines.                                  |
| San Rafael:   | 7,900—    | Extension of power lines in Forest Knolls.                 |
| Ripon:        | 4,350—    | Extension of power lines.                                  |
| Walnut Creek: | 3,820—    | Extension of power lines on Walnut boulevard.              |

## Substation for Antioch

Antioch is to play an important part in the distribution of electrical energy from Pit No. 3 development, now under way. In this growing town a substation will be erected in order to better the supply of power of the industrial area between Antioch and Bay Point. Already 55 acres of land have been purchased for a site, and plans made to begin construction by late summer or early fall.

The new substation is to be completed early next year. When Pit No. 3 comes in Antioch will take power at 110,000 volts from the big Vaca-Dixon substation and distribute it at 60,000 volts, thus forming an important link in the Pit-distribution chain.

Electric energy provides 70 per cent of all the power used in manufacturing in the United States. In 1919 the proportion was 55 per cent and in 1914, ten years ago, it was only 40 per cent.

## Divisions of the P. G. and E. (Article No. 4.)

Drum division comprises portions of Nevada, Placer and El Dorado counties. Headquarters are at Auburn and division offices at Colfax, Roseville, Nevada City and Grass Valley.

Twenty storage reservoirs in the high elevations of the Sierra Nevada mountains provide water for seven power plants. Lake Spaulding, last and greatest of the chain of reservoirs, impounds 75,000 acre feet of water. Of the seven power houses, Drum, with 50,268 horsepower, ranks second only to Pit No. 1 of the Shasta division. The other six are Wise and Halsey, with 16,756 horsepower each; Deer Creek, with 7,373; Spaulding No. 1, with 5,027; Alta, with 2,681, and Spaulding No. 2, with 1,340.

More than 15,000,000 electric lamps are required to illuminate the 250,000 electric signs in the United States.



## Anticipates Demands

### P. G. and E. Makes Plans to Enlarge Three Plants

One of the important duties of a public utility corporation is to anticipate the demands upon its service from year to year. That is why the Pacific Gas and Electric Company is now planning extensive improvements at various plants.

Volume of gas business in San Francisco is increasing at the rate of 10 per cent a year. To keep up with that demand the company recently installed at Army and De Haro streets a giant gasholder of 10,000,000 cubic feet capacity, but it has now become necessary to enlarge the Potrero plant. Adjoining lands aggregating twelve acres have been purchased at a cost of half a million dollars. Additional gas generators and auxiliary equipment have been ordered, and when projected additions and improvements that will cost \$86,000 are completed San Francisco will have one of the largest and most modern gas plants in the United States, capable not only of meeting all of San Francisco's domestic and industrial demands but of supplying the needs of the peninsula as far south as Sunnyvale.

#### Big Gasholder for San Jose.

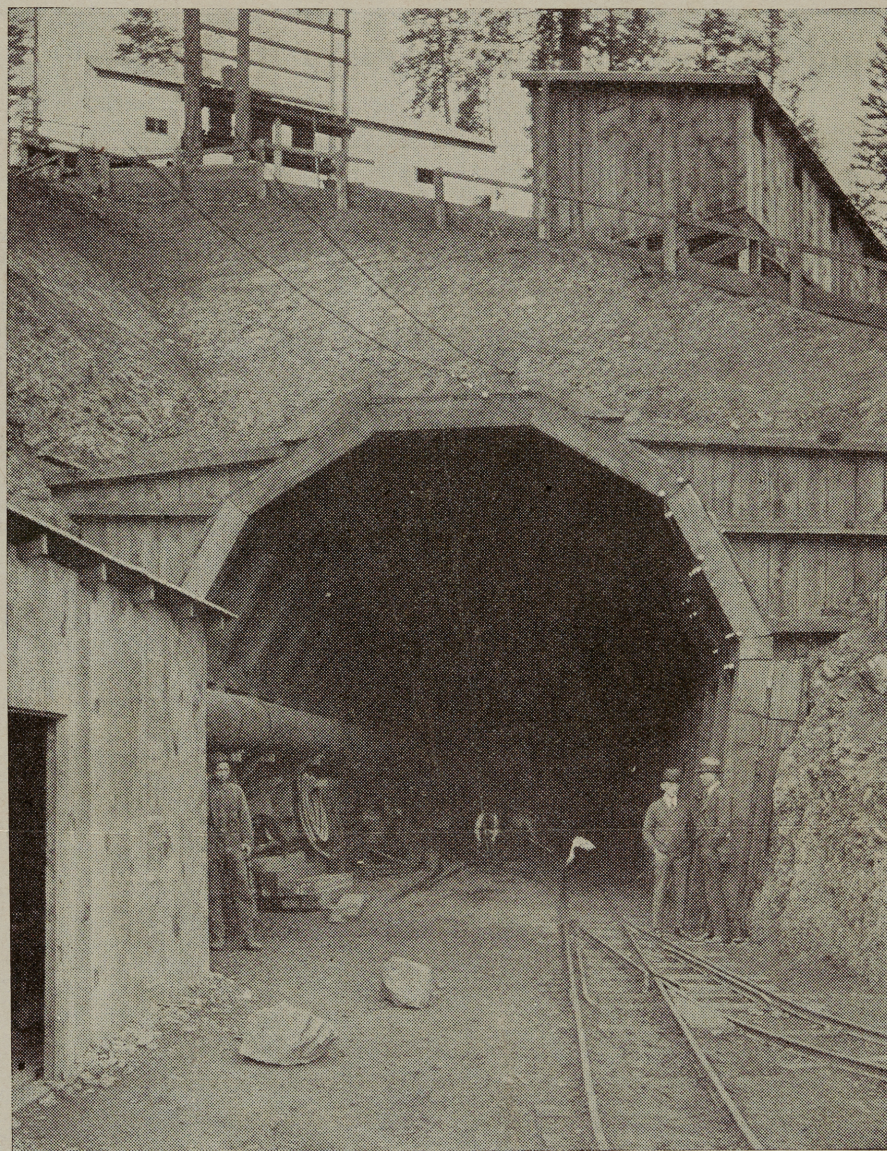
At San Jose, also, the company will enlarge its gas plant. There half a million dollars will be spent on a gasholder of 3,000,000 cubic feet capacity and auxiliary equipment. Company engineers who erected the 6,000,000 cubic-foot holder in Oakland and the 10,000,000 cubic-foot holder in San Francisco, count on completing the San Jose job by October 15, in time to take care of next winter's heating demands.

The San Jose holder, which will be 176½ feet high, and 177½ feet in diameter, will require 3,100,000 pounds of steel in its construction. Planned to keep pace with the growth of the Santa Clara valley it will increase the capacity of the San Jose plant from 644,300 cubic feet to 3,644,300 cubic feet. Increased storage facilities, high-pressure distribution, and a ten-mile tie-in of gas mains from Sunnyvale to San Jose will make it possible for the lower valley to draw gas from the San Francisco supply.

#### Substation to Be Rebuilt.

Increased demands for electricity have made necessary an important improvement at Mountain View. There the substation is to be reconstructed at a cost of \$138,000, this because the summer irrigation load in the district served by the Mountain View station has grown to proportions that require additional transformer capacity and standardization of equipment.

## Big Tube to Divert Pit Waters



Intake End of Five-Mile Tunnel Now Being Bored as Part of Pit No. 3 Development Work

WORK on Pit No. 3, latest big development of the Pacific Gas and Electric Company, goes steadily ahead, and already preparation is being made to take care of the additional 100,000 horsepower that will come in next year. For that purpose an expenditure of \$852,000 has been approved, which amount will be used to provide additional facilities for handling power at Vaca-Dixon substation, southern terminal of the record-breaking 200,000-volt transmission lines from Pit River, more than 200 miles away. It is from Vaca-Dixon that Pit River power is poured into the great network of lines that provide Northern California's metropolitan area with its never-failing supply of electrical energy.

The picture shows the intake of Pit No. 3 Division Tunnel. Pit River is to be raised about 110 feet above the present stream bed and diverted through this tunnel, which will be 20,969 feet, or nearly four miles, in length. After the tunnel has been lined with reinforced concrete in circular form, the inside diameter will be 19 feet. The two men standing together at the mouth of the bore are visitors discussing the magnitude of the work.



Martha M. Larinie,  
P. O. Box 55,  
Glen Ellen, Cal.

P. G. and E. Progress

1c. Paid  
San Francisco, Cal.  
Permit No. 525

## Would Slaying the Bird Increase Its Efficiency?

(From San Francisco Chronicle of March 12, 1924.)



### Consumers Get Refund on Advances for Extension

Refunds are now being made by the Pacific Gas and Electric Company to many consumers who advanced money for extension of electric lines or gas mains.

Prior to March 1 of last year consumers advanced extension costs in cases where the expenditure was more than three times the estimated annual revenue for electricity,

or where gas mains had to be extended more than 150 feet. Then a new system was adopted under which the company made extensions of power lines up to \$125 for residential consumers.

Now the company goes still further in the case of applications for agricultural or industrial power extensions and will expend a sum equal to five times the estimated annual revenue. Gas mains will be extended 200 feet, instead of 150 feet.

## Taxes in Bread Bill

### Roger W. Babson Finds 20 Per Cent Added to Cost

"Every manufacturer puts taxes into expense and hence adds them to the price of his products. Every merchant likewise puts taxes into expense and hence his taxes are added to the price of his goods. When one considers that there are five turnovers in the average product which we buy at the retail store, it is evident that five people have put their taxes into prices which we finally pay. Furthermore, they each charge a profit on the tax as well as on their goods and this stands to multiply the thing still more.

"The income tax that the farmer pays is added to the price of wheat; the income tax that the miller pays is added to the price of flour; the income tax that the baker pays is added to the price of bread; and the income tax that the storekeeper pays is added to the price of the individual loaf which you buy. Hence, when you buy a loaf of bread the tax of four groups of people is added and a profit on all these groups is added four times in addition. Get me? We not only pay, the four taxes for these four groups but we pay a profit of, say, 20 per cent on each of the four sets of taxes."

—Extract from "Taxes Are Paid by the Untaxed", by Roger W. Babson. Reprinted by permission from the Saturday Evening Post. Copyright, 1924, by The Curtis Publishing Company, Philadelphia, Pa.

### It Beats the Dutch!

A Holland without windmills won't look at all like the pictures, but such a transformation is under way. Modern electric motors are rapidly taking over the wind's traditional job.

The original purpose of the Dutch windmills was to pump flood waters from the dykes and thus protect the low-lying fields from overflow. They worked all right when there was wind, but in times of calm they loafed, and so now the wind's place is being taken by the electric motor, which works whenever the juice is turned on, and not only pumps water but propels dairy machinery and threshes grain.

### Light Promotes Piety

Now comes Professor M. Lukiesh, lighting expert, with a plan to put a stop to drowsiness in church congregations during service. He says that poor illumination, not dull sermons, causes the trouble, and that brighter lighting will keep the congregation alert and attentive.